ACC.15
TCT@ACC-i2 | innovation in intervention

A354
JACC March 17, 2015
Volume 65, Issue 10S

Arrhythmias and Clinical EP

BIPHASIC TRUNCATED EXPONENTIAL WAVEFORM IS SUPERIOR COMPARED TO PULSED BIPHASIC WAVEFORM IN CARDIOVERTING ATRIAL FIBRILLATION AND ATRIAL FLUTTER: A RANDOMIZED CONTROLLED TRIAL

Poster Contributions
Poster Hall B1
Saturday, March 14, 2015, 3:45 p.m.-4:30 p.m.

Session Title: Anticoagulation for Atrial Fibrillation: How Are We Doing?
Abstract Category: 4. Arrhythmias and Clinical EP: AF/SVT
Presentation Number: 1148-254

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Background: Several different biphasic waveforms are currently in clinical use, but few studies have compared their efficiency. The aim of this study was to compare the efficiency of a biphasic truncated exponential (BTE) waveform with a pulsed biphasic waveform (PBW) in patients undergoing elective cardioversion of atrial fibrillation and atrial flutter.

Methods: This is a prospective, single-center, randomized controlled trial. Patients admitted for elective cardioversion for atrial fibrillation and atrial flutter were eligible for inclusion, and enrolled between September 2013 and August 2014. Patients were randomized to receive cardioversion using either a BTE (LIFEPAK 20, Physio-Control Inc., Redmond, WA, USA) or a PBW (Multipulse Biowave ®), (Schiller Defigard 5000, Schiller AG, Baar, Switzerland). We used escalating shock protocols: BTE; 100 J, 150 J, 200 J, 250 J and PBW; 90 J, 120 J, 150 J, 200 J, according to the pre-specified settings of the respective defibrillators. All shocks were delivered with an anterior-posterior pad position. The primary outcome was successful cardioversion, defined as sinus rhythm at discharge 4 hours post cardioversion.

Methods: In total 134 patients were randomized; 64 patients received cardioversion by BTE (mean age 66.3 years, 22 % female, 14% atrial flutter), and 70 patients PBW (mean age 66.4 years, 26 % female, 14% atrial flutter). When using BTE 56 (88%) patients were successfully cardioverted versus 43 (61%) when using the PBW (p=0.001). The median count of total shocks delivered was 2 (interquartile range, 1-3) for the BTE and 3 (1-4) for the PBW.

Conclusion: Biphasic truncated exponential waveform is superior compared to pulsed biphasic waveform in cardioverting atrial fibrillation and atrial flutter.